

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK**

SIGNIFY NORTH AMERICA CORPORATION
and SIGNIFY HOLDING B.V.

Plaintiffs,

v.

SATCO PRODUCTS, INC.

Defendant.

Civil Action No. 2:19-cv-06125-JMA-SIL

JURY TRIAL DEMANDED

**SIGNIFY NORTH AMERICA CORPORATION AND
SIGNIFY HOLDING B.V.'S
OPENING CLAIM CONSTRUCTION BRIEF**

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3	U.S. Patent No. 7,256,554
4	U.S. Patent No. 6,972,525
5	U.S. Patent No. 8,070,328
6	U.S. Patent No. 7,348,604
7	U.S. Patent No. 7,358,929
8	Declaration of Michael Gershowitz
9	Declaration of Regan Zane, Ph.D.
10	William R. Blood, <i>MECL System Design Handbook</i> (4th ed. 1988)
11	Illustrated Dictionary of Elec. 145 (Stan Gibilisco ed., 8th ed. 2001)
12	McGraw Hill Dictionary of Sci. and Tech. Terms 159, 453, 1560 (Sybil P. Parker ed., 5th ed. 1994)
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18	<i>Flyback Converter</i> , Wikipedia, https://en.wikipedia.org/wiki/Flyback_converter (last visited Nov. 20, 2020)
19	<i>Buck Converter</i> , Wikipedia, https://en.wikipedia.org/wiki/Buck_converter (last visited Nov. 20, 2020)

GLOSSARY

Term	Definition
Signify or Plaintiff	Plaintiffs Signify North America Corporation and Signify Holding B.V.
Satco or Defendant	Defendant Satco Products, Inc.
'138 Patent	U.S. Patent No. 7,352,138
'399 Patent	U.S. Patent No. 7,038,399
'554 Patent	U.S. Patent No. 7,256,554
'525 Patent	U.S. Patent No. 6,972,525
'328 Patent	U.S. Patent No. 8,070,328
'604 Patent	U.S. Patent No. 7,348,604
'929 Patent	U.S. Patent No. 7,358,929
The Patents-in-Suit	U.S. Patent No. 7,352,138; U.S. Patent No. 7,038,399; U.S. Patent No. 7,256,554; U.S. Patent No. 6,972,525; U.S. Patent No. 8,070,328; U.S. Patent No. 7,348,604; U.S. Patent No. 7,358,929

INTRODUCTION

Signify respectfully submits this brief in support of their proposed claim constructions. The vast majority of the terms in dispute can be afforded their plain and ordinary meaning. Accordingly, Signify proposes constructions for a limited set of terms that lend clarity to the scope of the inventions.¹

On the other hand, Satco has proposed over 30 terms for construction. Each construction sought by Satco injects unnecessary limitations into the claims or limits the claims to particular embodiments; both of which is improper under governing law. Satco also advances indefiniteness arguments, even though experts agree the terms would be readily understood by those of ordinary skill. Satco's unsupported constructions and improper indefiniteness arguments should be rejected. Signify thus respectfully requests that the Court adopt its proposed constructions.

TECHNOLOGY OVERVIEW

Signify asserts seven patents relating to light-emitting diode ("LED") products. LED products have become ubiquitous in today's world, rapidly replacing traditional incandescent bulbs in homes and businesses alike. Despite their higher initial cost, LED products are often chosen over incandescent and compact fluorescents because LED products have a longer lifetime and are more efficient.

LED products now look and function much like traditional incandescent bulbs. But it took significant efforts over many years to get to this point, primarily because LED products function very differently than incandescent lights. Unlike traditional incandescent bulbs, where a resistive filament glows when connected to a standard alternating-current (A.C.), LED lighting devices emit

¹ Except for five terms (including one term that the parties agree is governed by 35 U.S.C. § 112, ¶ 6), the remainder of the terms and phrases before the Court for construction were proposed by Satco.

light using LEDs, which require direct-current (D.C.) power and a lower voltage to operate. Because of this, LED products pose unique and difficult electrical, thermal, and other functional challenges. The Patents-in-Suit exemplify Signify’s intensive, decades-long development in the LED space.

LEGAL STANDARDS

I. TERMS ARE GENERALLY GIVEN THEIR PLAIN AND ORDINARY MEANING

Claim construction is not an exercise in rewriting claims. *See Taurus IP, LLC v. DaimlerChrysler Corp.*, 726 F.3d 1306, 1321 (Fed. Cir. 2013) (“Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee.”) (internal citation omitted). Ultimately, the goal of claim construction is to “accord a claim the meaning it would have to a person of ordinary skill in the art [a “POSITA”] at the time of the invention.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). There is a “heavy presumption” that claim terms should be given their plain and ordinary meaning. *Mass. Inst. of Tech. v. Shire Pharm., Inc.*, 839 F.3d 1111, 1118 (Fed. Cir. 2016).

In construing the claims, the claim language, the specification, and the prosecution history “is the most significant source of the legally operative meaning of disputed claim language.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, “[t]he starting point for any claim construction must be the claims themselves.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999).

Finally, although extrinsic evidence, such as expert testimony, inventor testimony, dictionaries, and treatises, “may be considered when ambiguity remains even after consulting the intrinsic evidence,” “the Federal Circuit has cautioned courts not to place too much reliance on

extrinsic evidence and too little reliance on intrinsic evidence.” *Speedfit LLC v. Woodway USA, Inc.*, 2017 U.S. Dist. LEXIS 192088, at *11 (E.D.N.Y. Nov. 20, 2017) (citations omitted).

II. LEGAL PRINCIPLES APPLICABLE TO MEANS-PLUS-FUNCTION TERMS

Section 112, ¶ 6 provides that “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” 35 U.S.C. § 112, ¶ 6 (pre-AIA). Where an element of a claim is expressed in this manner, it is described as a “means-plus-function” term or “step-plus-function” term. Section 112, ¶ 6 further provides that, when such a term is present in the claim, the “claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” *Id.*

To determine whether § 112, ¶ 6 applies to a particular term, Federal Circuit precedent “has long recognized the importance of the presence or absence of the word ‘means.’” *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018). When a claim term does not recite the word “means,” it triggers a presumption that the claim term does *not* invoke the means-plus-function provision. *Id.* This presumption is rebuttable only if “the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.*

If the Court determines that § 112, ¶ 6 applies such that the term is a means-plus-function term, the Court construes the term under a two-part framework: First, the court must determine the particular function of the claim limitation, and second, the court must identify the corresponding structure in the written description that performs that function. *Chi. Bd. Options Exchange, Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1367 (Fed. Cir. 2012). A party alleging that the specification

fails to disclose sufficient structure such that the claim is indefinite must prove such failure by clear and convincing evidence. *TecSec, Inc. v. IBM.*, 731 F.3d 1336, 1349 (Fed. Cir. 2013).

III. LAW OF INDEFINITENESS

A claim term is only indefinite under 35 U.S.C. § 112 when, viewed in light of the claim, the specification, and the prosecution history, it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). The party alleging indefiniteness bears the burden of proving indefiniteness by clear and convincing evidence. *See Sonix Tech. Co., v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017); *see also Microsoft Corp. v. I4I Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011) (requiring that invalidity challenges meet a clear and convincing evidentiary standard in light of the presumption of validity attached to an issued patent). Application of the term by an expert can also provide evidence that a skilled artisan understands the scope of an invention with reasonable certainty. *Sonix*, 844 F.3d at 1380.

ARGUMENT

IV. TERMS AND PROPOSED CONSTRUCTIONS OF THE '328 PATENT CLAIMS 1, 2, 10, 16, 19

A. Overview of the '328 Patent

The '328 Patent is directed to LED lighting devices and specifically to downlights that use LEDs. *See, e.g.*, Ex. 5 at 1:20-23. At a basic level, a downlight can be thought of as a light that is usually recessed into the ceiling and directs light downward. Ex. 8 at ¶¶ 34-39. Commonly, downlights are used for residential indoor applications, and in commercial spaces. Ex. 8 at ¶¶ 34-39. The '328 Patent discloses and claims downlights using novel combinations of an LED array with reflectors, diffusers, and/or lenses. *See e.g.*, Ex. 5 at 3:7-13.

B. “heatsink / heat sink”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claims 1, 2, 10, 16, 19	Plain and ordinary meaning	a heat-conductive device that absorbs or dissipates unwanted heat and reduces heat in the LED downlight fixture

The term “heatsink” or “heat sink” requires no construction beyond its ordinary meaning. This term is common in the field and has a plain meaning to those in it. Ex. 8 at ¶¶ 56-62. The Federal Circuit instructs courts “to depart from the plain and ordinary meaning of claim terms based on the specification in only two instances: lexicography and disavowal.” *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). Neither instance applies here. This is especially true given that “the standards for finding lexicography and disavowal are exacting.” *Id.* “‘To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning and must clearly express an intent to redefine the term.’” *Id.* (citation omitted). And “[d]isavowal requires that ‘the specification [or prosecution history] make [] clear that the invention does not include a particular feature,’ or is clearly limited to a particular form of the invention.” *Id.* at 1372 (citations omitted).

Here, nothing in the specification or the prosecution history indicates that the patentee intended to redefine the term “heatsink” or that it is somehow limited to the particular form set forth by Plaintiffs’ definition. Indeed, heatsink is used over three dozen times, without any redefinition of the term or disavowal of its plain and ordinary meaning. The plain and ordinary meaning of “heatsink” therefore governs. *See Hill-Rom Servs.*, 755 F.3d at 1371.

Moreover, rather than being helpful for a jury, Satco’s construction takes a term common in the art and needlessly complicates it. For example, Satco’s construction uses terms such as “heat-conductive device,” a phrase itself that not only does not clarify the meaning of heat sink but that also could be open to different interpretations. The same is true for the rest of the definition

which seems to require that the heatsink serve several different functions: (i) that it absorbs or dissipates unwanted heat; and (ii) that it reduces heat in the LED downlight fixture. Each of these portions of Plaintiffs’ definition serve only to add ambiguity into a well understood term. *See* Ex 8 at ¶¶ 56-62. This is improper. *See Source Vagabond Sys. v. Hydrapak, Inc.*, 753 F.3d 1291, 1299 (Fed. Cir. 2014) (“Instead of looking to the words themselves, [plaintiff] added language without support from the specification or prosecution history, altering otherwise unambiguous claim language, a practice this court has repeatedly rejected.”).

Further, Satco’s definition is incorrect as a matter of science. It is scientifically incorrect to say that a heatsink is a heat-conductive device that absorbs heat. Ex 8 at ¶ 61. If a heat sink continuously absorbed heat without transferring that heat to another location, the heat sink would continue to rise in temperature, causing the LEDs to overheat. *Id.* This is contrary to the entire purpose of a heat sink. *Id.*

If the Court finds it necessary to construe “heatsink,” the construction should simply make explicit the term’s ordinary meaning: an element that draws heat away from the LED and transfers it to the surrounding environment. *See* Ex 8 at ¶¶ 56-59. Unlike Satco’s definition, this definition is consistent with a skilled artisan’s understanding, as demonstrated by numerous technical references. Ex. 8 at ¶ 57; Ex. 10 at 108 (“If the integrated circuit package is installed in, or attached to a heat sink, then heat is transferred mainly by conduction to the heat sink, and then by convection and radiation from the heat sink to ambient.”); *see also, CAO Grp., Inc. v. Magpie Tech Corp.*, 2017 U.S. Dist. LEXIS 13343, at *15-16 (D. Utah Jan. 30, 2017) (holding that heat sink was construed to mean a “body that draws heat away from an LED” and that defendant’s construction requiring a heat sink to be “a structure in intimate contact with a component that aids in heat

transfer and heat dissipation to limit the temperature rise” was “confus[ing] and complicates the term”).

A. “engaging”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claim 5	Plain and ordinary meaning	interlocked with

As with “heatsink,” the claim language “engaging” has a plain and ordinary meaning. No further construction is necessary. Satco’s argument that the term “engaging” should be construed to mean “interlocked with” finds no support whatsoever in the claims, specification or prosecution history and improperly limits and restricts the meaning of the term. There is no evidence in the intrinsic record that the patentees gave “engaging” a special meaning or that they disavowed its plain and ordinary meaning as is required to deviate from the plain understanding. *Hill-Rom.*, 755 F.3d at 1371. The term’s plain and ordinary meaning therefore controls.

Further, the specification demonstrates why it is improper to limit “engaging” to “interlocked with.” In Figure 6, the diffuser (74) is shown abutting the first reflector (52). This configuration can thus be described as having the diffuser engaging the first reflector, although it is not “interlocked with” it. The same is true of Figure 7, where the lower edge of the upper reflector would lay atop of the diffuser mounting. Again, in such a configuration the upper reflector is “engaged” with the diffuser but not “interlocked” with it. Satco’s construction thus reads out embodiments disclosed in the specification, which is impermissible without a clear and express disclaimer or disavowal. *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276-77 (Fed. Cir. 2008) (noting that claim terms are not interpreted “in a way that excludes embodiments disclosed in the specification” unless “those embodiments are clearly disclaimed in the specification . . . or prosecution history.”).

Further, the specification states that:

Unless limited otherwise, the terms ‘connected,’ ‘coupled,’ and ‘mounted,’ and variations thereof herein are used broadly and encompass direct and indirect connections, couplings, and mountings. In addition, the terms ‘connected’ and ‘coupled’ and variations thereof are not restricted to physical or mechanical connections or couplings.

Ex. 5 at 3:52-58. Thus, the specification clearly states that the direct, physical connection that Satco now demands is not required. Other courts have found constructions like Satco’s for “engaging” improper. *See Bos. Sci. Corp. v. Cook Grp., Inc.*, 2016 U.S. Dist. LEXIS 177053, at *40-41 (D. Del. Dec. 22, 2016) (“[T]he Court starts with the proposition that the plain meaning of ‘engaging’ does not require that something be physically connected to something else in order to be ‘engaging’ with it. . . . [A]bsent clear indication in a patent to the contrary, ‘engaging’ is not a term that requires a physical connection of the kind Defendants suggest.”).

Thus, the Court should give this term its plain and ordinary meaning and reject Satco’s construction as being clearly at odds with the ’328 Patent’s claims and specification.

B. “preselected spaced distance”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claim 19	Plain and ordinary meaning	distance chosen in advance to achieve optimal cut-off, reduced glare and increased light efficiency

Similar to the claims above, there is no evidence in the intrinsic record that the patentees gave “preselected spaced distance” a special meaning or that they disavowed its plain and ordinary meaning. Therefore, the plain and ordinary meaning, which consists of easily understood words, controls. *Hill-Rom*, 755 F.3d at 1371.

Satco attempts to read certain functionality from the specification into the claim. Namely, Satco seeks to require that the “preselected distance” “achieve optimal cut-off, reduced glare and increased light efficiency.” Yet nothing in the specification or claims limits “preselected spaced distance” to only distances “that achieve optimal cut-off, reduced glare and increased light

efficiency.” Indeed, the “preselected spaced distance” is described in a single portion of the specification, which states:

An LED downlight fixture comprises an LED array formed of a plurality of LEDs, the LED array positioned in thermal communication with a heatsink, a reflector having an upper opening and a lower opening, the LED array disposed adjacent the upper opening, ***a diffuser positioned a preselected spaced distance from the LED array***, the diffuser positioned one of above a lowermost edge reflector or beneath the lowermost edge of the reflector...

Ex. 5 at 2:60-67 (emphasis added). Nowhere in this passage does it require that the diffuser “achieve optimal cut-off, reduced glare and increased light efficiency.”

Further, the specification’s discussion of light efficiency is always associated with the LEDs, not the diffuser. The specification states that “LEDs are more efficient than fluorescent lights and have a longer life than HID, florescent or incandescent lights.” Ex. 5 at 1:35-37. The specification then states that “[t]he LED and diffuser positioned within the reflector assembly provide ample light cut-off, reduced glare and increased lighting efficiency.” Ex. 5 at 4:1-3. But “increased lighting efficiency” refers to the LED, not the diffuser. This is confirmed later in the specification when the specification repeats this sentence without inclusion of the LED: “the diffuser 74 is positioned within the reflector assembly for optimal cut-off and reduced glare.” Ex. 5 at 5:61-62. But more importantly, to require any of these functional features imports a limitation from the specification into the claim. It is black letter law that this is improper. *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 1367 (Fed. Cir. 2001) (“[T]he fact that the claimed composition was designed to solve certain problems of the prior art . . . does not mean that we must attribute a function to the nonfunctional [claim language]. Where the function is not recited in the claim itself by the patentee, we do not import such a limitation.”)

C. “one of above a lowermost edge reflector or beneath said lowermost edge of said reflector”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
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Claim 19	Plain and ordinary meaning	Indefinite
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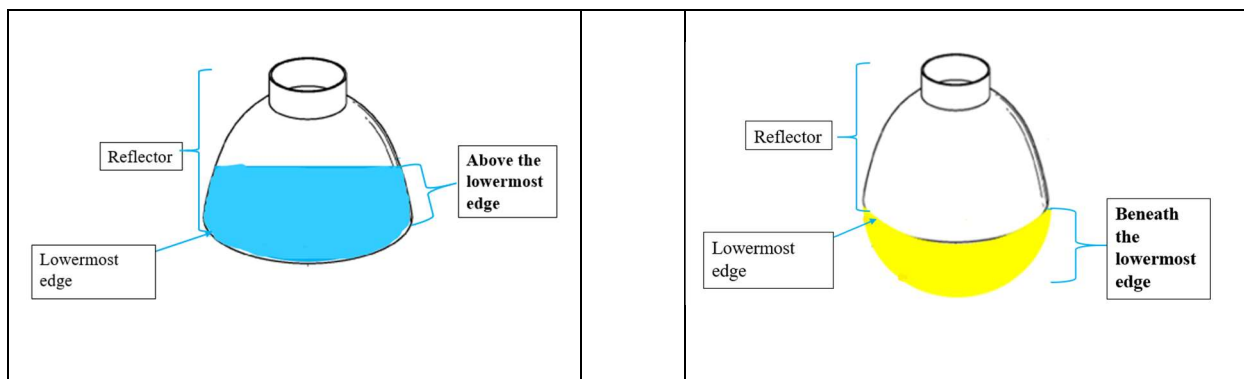
Satco disputes that “one of above a lowermost edge reflector or beneath said lowermost edge of said reflector” has a definite meaning. A claim term is only indefinite, if, when viewed in light of the claim, the specification, and the prosecution history, it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. *Nautilus, Inc.*, 134 S. Ct. at 2129. Far from being unclear, there is no question as to what this phrase means. Ex. 8 at ¶¶ 63-68. The term is not indefinite. *See Nautilus, Inc.*, 134 S. Ct. at 2124.

Satco must demonstrate that this phrase is indefinite by clear and convincing evidence. *See Sonix*, 844 F.3d 1377. There is no such evidence. To the contrary, the meaning of this term is crystal clear in the context of the claim:

19. An LED downlight fixture comprising: an LED array formed of a plurality of LEDs, said LED array positioned in thermal communication with a heat sink; a reflector having an upper opening and a lower opening, said LED array disposed adjacent said upper opening; a diffuser positioned a preselected spaced distance from said LED array; **said diffuser positioned one of above a lowermost edge reflector or beneath said lowermost edge of said reflector;**

Ex. 5 at cl. 19; *see also Tinnus Enters., LLC v. Telebrands Corp.*, 733 F. App’x 1011, 1020 (Fed. Cir. 2018) (holding that a court must view a claim in the context of the surrounding claim language when determining if it meets the definiteness requirement). As seen from this language, this phrase simply requires that a diffuser be positioned *either* above, the lowermost edge of a reflector, or beneath the lowermost edge of a reflector. A diagram demonstrating either of these positionings is shown below:

“above a lowermost edge” of the reflector	or	“beneath said lowermost edge” of the reflector
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Thus, this phrasing creates no confusion and is readily understandable to one skilled in the art.

Given that this phrase can be plainly understood on its face, a person of skill in the art would have no trouble discerning the meaning of this Claim. Ex. 8 at ¶¶ 63-68; *see Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1384 (Fed. Cir. 2015) (holding that the claim at issue was not indefinite because “a skilled artisan would understand the . . . parameters of the invention as provided in the intrinsic evidence”). This term is not indefinite.

V. TERMS AND PROPOSED CONSTRUCTIONS OF THE '399 AND '138 PATENTS

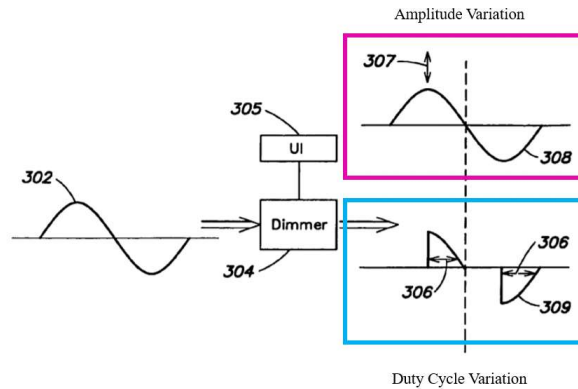
A. Overview of the '399 and '138 Patents

The '399 and '138 Patents are directed to LED-based illumination devices that are compatible with existing alternating current (“A.C.”) dimming circuits. Ex. 2² at 2:50-60. Lighting systems are generally powered by an A.C. power source, such as the standardized electricity found in most homes, commonly referred to as a “line voltage.” *Id.* at 1:50-53. Lighting dimmers receive this A.C. line voltage from the electrical grid and can vary the characteristics of the output A.C. signal in response to use of the dimmer switch (called a user interface in the patent). *Id.* at 1:53-59. This allows the user to increase or decrease a light’s brightness. Incandescent lights, which provide light via heating a filament (*i.e.*, a resistor), are inherently compatible with the varying

² All cites are to the '399 Patent unless otherwise specified. The '399 and '138 Patents share a common specification.

A.C. signals output by dimmer switches. The change in average voltage directly adjusts how hot the filament gets; and the temperature of the filament determines the intensity of the light output from the filament – the hotter the filament, the brighter the light. *Id.* at 2:30-46. In contrast to incandescent lights, LED lights emit light by electroluminescence—a fundamentally different physical phenomenon based on a flow of *direct* current (D.C.) through a semiconductor such as a diode. *Id.* at 4:11-18, 9:4-16; *see also* Ex. 9 at ¶ 25.

LEDs require special circuitry to be compatible with dimmers that use A.C. signals and to adjust their light output in response to such signals. *Id.* Traditional A.C. dimming circuits provide varying A.C. signals in one of two ways. *Id.* at 1:64-2:16. In one approach, the adjustment of the dimmer switch causes the A.C. dimming circuit to increase or decrease the voltage amplitude of the A.C. signal output. As the amplitude increases, the average voltage of the A.C. signal increases, making the light brighter. *Id.* at 1:66-2:2. In another more common approach, adjustment of the dimmer switch causes the A.C. dimming circuit to vary the “duty cycle” of the output A.C. signal. *Id.* at 2:3-8. The “duty cycle” refers to the relative time for which a voltage is active in the signal. Ex. 9 (Zane Decl.) at ¶ 26. By altering the duty cycle, the resulting A.C. signal is “chopped” such that a voltage is present only a portion of the time, thus again allowing variation of the average voltage of the signal over time. Ex. 2 at 2:2-6. The varying A.C. signals from these two different approaches are illustrated in Figure 1 of the ’399 Patent, reproduced below.



Id. at Fig. 1 (annotated); *see also* Ex. 9 at ¶¶ 26-27.

The '399 Patent discloses illumination devices and methods that make LED lights compatible with these non-standard, varying A.C. signals from A.C. dimmer circuits. *Id.* at 2:50-56. Figure 3 of the '399 Patent, shown below, illustrates an exemplary lighting unit that is compatible with an A.C. dimmer circuit that provides A.C. signals having a varying duty cycle.

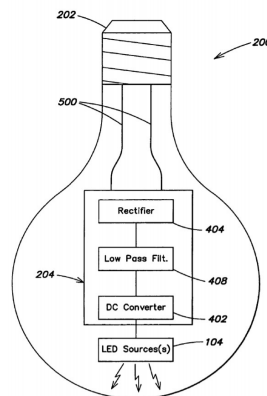


FIG. 3

Id. at Fig. 3. To allow compatibility with a varying A.C. signal, the invention converts the A.C. signal into a D.C. signal suitable to drive an LED light source using a suitable controller. In this exemplary embodiment, the controller comprises a combination of a rectifier, low-pass filter, and DC converter. *See id.* at 12:61-63, 14:6-14. The rectifier changes the variable AC signal by inverting the negative voltage components of the AC signal so that the resulting signal contains only positive voltages. Ex. 9 at ¶ 29. The low-pass filter removes higher frequency components

from the signal, and the DC converter flattens the signal into a non-varying DC signal. Ex. 2 at 12:61-67, 14:1-18; Ex. 9 at ¶ 29. In other exemplary embodiments, like the embodiment of Figure 5, the light output from the LED is varied based on the varying output of the dimmer using an adjustment circuit. Ex. 2 at 14:8-18. The adjustment circuit provides a variable drive signal to the LED based on variation in the average voltage of the incoming A.C. signal in response to user operation of the dimmer. *Id.* at 14:14-18. The specification provides further details on exemplary circuit embodiments for each of these components. *See, e.g., id.* at Figs. 4, 6; *see also* Ex. 9 at ¶¶ 28-30

B. “Controller”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
399 Claims: 1-5, 7-12, 15, 17, 47-49, 57-60, 62, 63	Plain and ordinary meaning It is Signify’s position that this is not a means-plus-function term governed by § 112, ¶ 6.	This is a “means-plus-function” term pursuant to § 112, ¶ 6. Satco has proposed structures and functions for each asserted claim.
138 Claims: 1-5, 7, 9-15, 18, 20	To the extent that the Court finds that the term is governed by § 112, ¶ 6, Signify has proposed alternate structures and functions for each asserted claim.	<i>*See Appendix I and II for the parties’ constructions for each claim.</i>

“Controller” is a structural component that should be given its plain and ordinary meaning in the art. A “controller” is a structural device that controls voltage or current. Ex. 9 at ¶ 43. In the context of the claims, the controller receives a non-standard A.C. signal as an input and provides an output signal suitable for driving the LED light source as required by each claim.

“Controller” is not a means-plus-function term. To determine whether § 112, ¶ 6, applies, Federal Circuit precedent “has long recognized the importance of the presence or absence of the word ‘means.’” *Zeroclick*, 891 F.3d at 1007. When a claim term does not recite the word “means,” it triggers a presumption that this provision is not invoked. *Id.* This presumption is

rebuttable only if “the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.*

Just because a controller connotes “a class of structures, rather than one specific structure,” does not make it a means-plus-function term. *Sound View Innovations, LLC v. Facebook, Inc.*, 2017 U.S. Dist. LEXIS 76412, at *11 (D. Del. May 19, 2017). The term “controller” is not a nonce word that operates as a substitute for “means.” *See Milos Misha Subotincic v. 1274274 Ont.*, 2012 U.S. Dist. LEXIS 196603, at *41 (C.D. Cal. June 14, 2012) (“[E]ven if the specification was completely silent as to the structure of the controller, the plain meaning of the term itself connotes sufficient structure to a person of ordinary skill in the art to avoid means plus function treatment.”). Accordingly, courts have consistently found that a “controller” is not a means-plus-function term. *See, e.g., Sound View Innovations* 2017 U.S. Dist. LEXIS 76412, at *11 (“‘Controller’ may be a class of structures, rather than one specific structure, and may be defined with functional terms, but that does not make it means-plus-function.”); *id.* (holding that “controller” is not a functional term and stating that “controller,” is not “anything that controls,” but, as used in the relevant patent, “refers to hardware controllers as well as firmware and software controllers or hybrid controllers”); *Dominion Res., Inc. v. Alstom Grid, Inc.*, 2015 U.S. Dist. LEXIS 179083, at *7-8 (E.D. Pa. Oct. 28, 2015) (stating, “[t]he term[] ‘controller’ . . . do[es] not have the same verbal construct which could be tantamount to using the word ‘means’”).

The term “controller” here merits no different treatment. It is not a nonce word, and the claims do not refer to any “means.” Thus, the presumption is that the term “controller” does *not* invoke § 112, ¶ 6, and Satco cannot rebut that presumption here because the claimed “controller” is structural. *Zeroclick*, 891 F.3d at 1007.

First, dictionaries demonstrate that “controller” denotes structure, defining it as, for example, “[a] device . . . used to adjust current or voltage” or “[a] circuit, mechanism, device, or system, which monitors one or more variables, and automatically makes the necessary adjustments in order to maintain operation within the specified parameters.” *See, e.g.*, Ex. 11 at 145, Ex. 13 at 145; *see also* Ex. 12 at 453, 159. A POSITA thus would have understood that a “controller” is a structural device that controls voltage or current. Ex. 9 at ¶ 48. Therefore, even before looking to the ’399 and ’138 Patents, it is evident that a skilled artisan would have understood “controller” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007.

The claims of the ’399 and ’138 Patents provide further details and confirmation of the structure for the claimed “controller.” *See* Ex. 9 at ¶¶ 44-46. Claims 1, 7, 17 and 18, for example, recite a controller “coupled to the at least one LED” that “receive[s] a power-related signal from an alternating current (A.C.) power source” as well as “provide[s] power to the at least one LED based on the power-related signal.” Ex. 2 at cls. 1, 7, 17, 18. Claims 17 and 18, for example, further specify that the controller includes an “adjustment circuit” and “power circuitry,” the latter of which further includes a “rectifier,” a “low pass filter,” and a “DC converter.” *Id.* at 26:38-67. And claim 48 recites “a housing . . . to enclose the at least one LED and the at least one controller.” *Id.* at 30:52-55. The claims thus set forth specific structure for the controller.

The specification further confirms that “controller” is a structural term. *See* Ex. 9 at ¶ 47. For example, the controller is “coupled to” at least one LED and configured to provide power to the LED. Ex. 2 at 3:4-11, 3:17-22, 3:27-39, 12:50-67, 14:8-18, 13:42-57, Figs. 3-8. (stating and illustrating that the controller in exemplary embodiments is “coupled to” at least one LED, configured to provide power to the LED, and includes components such as a rectifier, low pass filter, DC converter, and adjustment circuit). Figure 6, for example, is an exemplary circuit for one

embodiment of the controller components shown in Figure 5, including exemplary structure of controller 204A. *Id.* at 14:1-49, Figs. 5, 6. In some embodiments, the controller may also include a processor. *Id.* at 14:52-55, Fig. 7. The specification even states that a controller refers to “various *apparatus* relating to the operation of one or more light sources” that can be implemented “with dedicated *hardware*.” *Id.* at 6:19-46 (emphases added). Because these are structural terms that “describe how the [controller] interacts with other components” in the claim in a way that “inform[s] the structural character of the limitation-in-question” and “otherwise impart structure” to “controller,” the claim language confirms that a skilled artisan would understand the claimed “controller” to recite a sufficiently definite structure. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015) (en banc); *see also Zeroclick*, 891 F.3d at 1007; Ex. 9 at ¶ 47.

If “controller” is governed by § 112, ¶ 6, the Court should adopt Signify’s proposed structure as supported by the specification. If the Court determines that § 112, ¶ 6 applies, the court must first determine the particular function of the controller, and then identify the corresponding structure(s) in the written description that performs that function. *Chi. Bd. Options*, 677 F.3d at 1367. The parties agree on the recited functions and only disagree on the proposed structures. The parties generally identify two sets of structures; one where the LED is dimmable and one where it is not. The below charts identify the structures each party contends apply, with the differences in the identified structures bolded. *See* Ex. 9 at ¶ 49.

Structure for controller where power to LED is varied (e.g., dimmable)	
Claims: ’399 Patent – 7-12, 15, 17, 34, 47-49, 58-60, 62, 63; ’138 Patent – 9-15, 17, 18, 20	
Signify	Satco
Structure may comprise any of the following: (a) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208 as illustrated in FIG. 5 and described in the specification, including exemplary	(a) the components of rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208 that are shown in FIG. 6; or (b) the components of controller 204B that are shown in FIG. 7, FIG. 8 (for the power circuitry) and either FIGS. 9 or 10 or 11 (for

<p>embodiments of those components as shown in FIG. 6 and described in the specification;</p> <p>(b) controller 204B as illustrated in FIG. 7 and described in the specification, including exemplary embodiments of those components as shown in FIG. 8 (for the power circuitry) and either FIGS. 9 or 10 or 11 (for the drive circuitry); and described in the specification;</p> <p>and/or structural equivalents thereof.</p> <p>As a non-limiting example, <i>see</i> '138 Patent at 3:12-4:19, 6:28-7:35, 10:49-11:12, 11:24-64, 12:25-23:4, 24:62-28:26, Figs. 3-8.</p>	<p>the drive circuitry), wherein the processor 102 is programmed according to '399 Patent at 17:9-50.</p>
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Structure for controller where power to LED is “non-varying”	
Claims: '399 Patent – 1-6, 30-33, 57; '138 Patent – 1-5, 7³	
Signify	Satco
<p>Structure may comprise any of the following:</p> <p>(a) rectifier 404, low-pass filter 408 and DC converter 402 as illustrated in FIG. 3 and described in the specification, including the exemplary embodiments of those components as shown in FIG. 4 and described in the specification;</p> <p>(b) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208 as illustrated in FIG. 5 and described in the specification, including exemplary embodiments of those components as shown in FIG. 6 and described in the specification;</p> <p>(c) controller 204B as illustrated in FIG. 7 and described in the specification, including exemplary embodiments of those components as shown in FIG. 8 (for the power circuitry) and either FIGS. 9 or 10 or 11 (for the drive circuitry); and described in the specification;</p>	<p>the components of rectifier 404, low-pass filter 408 and DC converter 402 that are shown in FIG. 4.</p>

³ Claims 1-2 of the '138 Patent do not require that power provided to the LED is “non-varying” or dimmable. Thus, claims 1-2 of the '138 Patent are entitled to the broader set of structures for the “non-varying” claims.

<p>and/or structural equivalents thereof.</p> <p>As a non-limiting example, see '138 Patent at 3:12-4:19, 6:28-7:35, 10:49-11:12, 11:24-64, 12:25-23:4, 24:62-28:26, Figs. 3-8.</p>	
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Varying (Dimmable) Claims: For the dimmable claims, the parties agree that the structures corresponding to the controller include (i) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208; (ii) and controller 204B. The dispute is whether these corresponding structures are further limited to only the specific exemplary circuit embodiments of those structures shown in Figure 6 and 8. Signify's proposal properly recognizes that the corresponding structures are illustrated in Figures 5 and 7, and that Figures 6 and 8 provide exemplary circuit embodiments for realizing those structures. Satco, on the other hand, seeks to ignore Figures 5 and 7 and the description in the specification and limit the scope of the disclosed structures to only the two specific embodiments shown in Figures 6 and 8. Satco's proposal is wrong, and should be rejected. *See* Ex. 9 at ¶ 50.

The claimed "controller" corresponds to two separate high-level structures as illustrated in Figures 5 and 7. *See* Ex. 9 at ¶ 51. In Figure 5, the structure corresponding to the controller includes rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208. In Figure 7, corresponding structure includes power circuitry 108, processor 102, drive circuitry 109, and memory 114. *See* Ex. 9 at ¶¶ 51-53. The structures corresponding to the controller are not, however, limited by the manner in which these specific components are realized at the circuit level. The fact that the patent provides an exemplary circuit embodiment for some components does not mean that other circuits cannot be used to realize the disclosed structures. Indeed, rectifier 404, low-pass filter 408, and DC converter 402 are also components of the controller illustrated in Fig. 3 (for a non-varying LED), but the circuit level example for these components (as shown in Fig. 4) is different. Ex. 9 at ¶ 58. Accordingly, the corresponding structures for the controller in the

dimmmable claims are the components shown in Figs. 5 and 7, which of course includes, but is not limited to, the specific circuit examples illustrated in Figures 6 and 8. *See* Ex. 9 at ¶¶ 54-8.

Satco's proposal also fails to include the descriptions of the controller from the specification that describe the corresponding structures, presumably because the specification makes clear that the corresponding structures are not limited to the circuit level examples in Figures 6 and 8. For example, the specification explains that it may be advantageous to place all or part of the filter components 408 ahead of the rectifier 404. Ex. 2 at 13:56-58. Similarly, the specification explains that "the circuit of Fig. 8 may be modified to include additional components similar to those shown in connection with the adjustment circuit 208 of FIG. 6 . . ." Ex. 2 at 19:5-12, which would require modification of the circuit-level implementation. Ex. 9 at ¶ 59. The patent further explains that the circuit of Fig. 8 could be modified to derive a control signal from other parts of the circuit, such as at an output of the rectifier or low pass filter. Ex. 2 at 19:13-16. These passages, among others, make clear that the structures corresponding to the controller are not limited to the specific circuit implementations that Satco proposes and instead encompass all of the structures identified by Signify. *See Acromed Corp. v. Sofamor Danek Grp. Inc.*, 253 F.3d 1371, 1382-82 (Fed. Cir. 2001) ("This court will not limit a patent to its preferred embodiments in the face of evidence of broader coverage by the claims."); *see also Kinik Co. v. ITC.*, 362 F.3d 1359, 1364 (Fed. Cir. 2004); *see also* Ex. 9 at ¶ 60.

Non-Varying Claims: The dispute over the non-varying claims is essentially the same. Signify's proposed structures include all of the structures that correspond to the claimed controller while Satco attempts to limit those structures to only the single circuit-level implementation of Figure 4. But Figure 4 is only one circuit-level example of a suitable controller. One structure corresponding to a suitable controller is illustrated in Fig. 3 and includes rectifier 404, low-pass

filter 408, and DC converter 402. A person of ordinary skill in the art would have been familiar with these components, and that there are multiple arrangements for their circuit-level embodiment. Ex. 9 at ¶¶ 61-64. There is no reason to limit these structures to only a single circuit-level example.

Satco also excludes the other controller embodiments (discussed above) that allow for control when the power signal is varying (e.g. those shown in Figures 5-8 and described in the specification). Although those structures include additional adjustment circuitry, they remain suitable for use when the signal is non-varying so there no reason to exclude them. In other words, where the claims require the power provided by the controller to be “non-varying,” the structure for the controller may comprise either a structure with an (unused) adjustment circuit as shown in Figures 5, 6, 7, 8, 9, 10, and 11 or a structure without an adjustment circuit, as shown in Figures 3 and 4 and described in the specification. Because only Signify’s proposal captures all of the corresponding structure, it should be adopted.

The structure for “controller” is not indefinite. Satco also disingenuously argues that the “controller” term is indefinite, but only when it is appears in particular claims of the 138 Patent.⁴ For example, Satco argues that the structure for “controller” is indefinite for claim 12 of the ’138 Patent, but Satco makes no such argument with respect to the identically recited “controller” in claim 9 of the ’399 Patent. *Compare* App. I at cl. 12 *with* App. II at cl. 9.

Aside from being inconsistent, Satco’s contention that “controller” is indefinite is also incorrect. As explained above, “controller” is a structure that controls voltage or current and should be afforded its plain and ordinary meaning. In the alternative, the specification recites ample

⁴ Satco argues that the structure for “controller” is indefinite for the following claims of the ’138 Patent: 11, 12, 13, 14, 15, 17-18,

structure for “controller.” *See, e.g.*, Ex. 2 at 3:4-11, 3:17-22, 3:27-39, 6:19-28, 10:43-11:42, 12:22-19:42, Figs. 3-8. But clearly, where the recited claims are identical, it is illogical for Satco to argue that a POSITA would not have understood the recited structure with reasonable certainty. Satco cannot show with clear and convincing evidence that a person of ordinary skill would not be informed of the scope of the invention with reasonable certainty. *See* Ex. 9 at ¶¶ 65-66. Thus, the Court should hold that “controller” is not governed by § 112 ¶ 6. In the alternative, the Court should reject Satco’s unsupported and inconsistent proposals for structure and adopt Signify’s proposal.

C. Method claim equivalents of “controller”

Several proposed terms for construction consist of a re-writing of the apparatus claims identified in Section V.B. above as the method claim equivalent. *See* App. IV. (showing a mapping of the apparatus claims to the method claims). Therefore, Signify incorporates by reference the arguments in Section V.B. as applicable to those method claim equivalents. A chart showing the parties’ proposed constructions for these terms is included in Appendix III.

D. “power circuitry”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claims 17, 18	<p>Plain and ordinary meaning</p> <p>It is Signify’s position that this is not a means-plus-function term governed by § 112, ¶ 6. To the extent that the Court finds that the term is governed by § 112, ¶ 6:</p> <p>Function: provide at least the power to the at least one LED based on the varying power-related signal</p> <p>Structure: may comprise any of the following:</p> <p>(a) rectifier 404, low-pass filter 408, and DC converter 402 as</p>	<p>This is a “means-plus-function” term pursuant to § 112, ¶ 6.</p> <p>Function: provide at least the power to the at least one LED based on the varying power-related signal</p> <p>Structure: either:</p> <p>(a) the components of rectifier 404, low-pass filter 408 and DC converter 402 that are shown in FIG. 4</p> <p>(b) the components of rectifier 404, low-pass filter 408, DC converter 402 and adjustment</p>

	<p>illustrated in FIG. 3 and described in the specification, including the exemplary embodiments of those components as shown in FIG. 4 and described in the specification</p> <p>(b) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208 as illustrated in FIG. 5 and described in the specification, including exemplary embodiments of those components as shown in FIG. 6 and described in the specification;</p> <p>(c) power circuitry as illustrated in FIG. 7 and described in the specification, including exemplary embodiments of that circuit as illustrated in FIG. 8 and described in the specification (including optional additional adjustment circuit as described at 19:4-15);</p> <p>and/or structural equivalents thereof.</p> <p>As non-limiting examples, <i>see</i> '138 Patent at 3:12-4:19, 6:28-7:35, 10:49-11:12, 11:24-64, 12:25-23:4, 24:62-28:26, Figs. 3-8.</p>	<p>circuit 208 that are shown in FIG. 6; or</p> <p>(c) the components of power circuitry 108 that are shown in FIG. 8</p> <p>and structural equivalents thereof.</p>
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“Power Circuitry” is part of the claimed controller, and would have been well-understood by those of ordinary skill in the art to be a structural term having the plain and ordinary meaning of power circuit components within the power processing path of a circuit. Ex. 9 at ¶ 67. In the context of the specification, power circuitry would include the power circuit components in the power path from the AC input to the DC LED output, including typical circuits such as a rectifier and DC converter. Ex. 9 at ¶ 67. Satco incorrectly argues that “power circuitry” should be interpreted as a means-plus-function term under 35 U.S.C. § 112, ¶ 6. Satco is wrong.

As with the “controller” term discussed above in Section V.B., “power circuitry” is not a means-plus-function term. It does not include the word “means” and is thus presumed *not* invoke

the means-plus-function provision of § 112, ¶ 6. *Zeroclick*, 891 F.3d at 1007. Satco cannot rebut this presumption because the term “power circuitry” provides sufficiently definite structure. *See* Ex. 9 at ¶ 68

Dictionaries demonstrate that “power circuitry” denotes structure, defining it as, for example, “the wires that carry current to electric motors and other devices that use electric power”—clearly structural objects. Ex. 12 at 1560 (defining “power circuit”). Thus, even before looking to the ’399 Patent, it is evident that a skilled artisan would understand “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007; *see also* Ex. 9 at ¶ 71.

In addition, the claims of the ’399 Patent recite sufficiently definite structure for the claimed “power circuitry.” Claim 18, for example, specifically recites “power circuitry,” as including a “rectifier,” a “low pass filter,” and a “DC converter.” Ex. 2 at 26:38-67. Because these are structures, the claim language confirms that a skilled artisan would understand the claimed “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007; *see also* Ex. 9 at ¶¶ 68-69.

Finally, the specification of the ’399 Patent describes the power circuitry in structural terms. For example, Figure 8 “illustrates one exemplary circuit arrangement for the power circuitry 108.” Ex. 2 at 18:50-53. The specification also explains that, for example, “a 5 Volt DC output 900 is provided for at least the processor 102, whereas a 16 Volt DC output 902 is provided for the drive circuitry 109, which ultimately provides power to the LED-based light source 104.” Ex. 2 at 18:54-58. Again, these are structural descriptions that confirm a skilled artisan would understand the claimed “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007; *see* Ex. 9 at ¶ 70. In view of the foregoing, the term “power circuitry” does not invoke § 112, ¶ 6.

If “power circuitry” were governed by § 112, ¶ 6, the Court should adopt Signify’s proposed structures. The parties agree on the functions performed by the power circuitry, and also agree that corresponding structure for “power circuitry” includes (i) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208; and (ii) power circuitry 108. But, as with the “controller” term, the parties disagree on whether the disclosed structure is limited to the specific circuit-level embodiments illustrated in Figs. 6 and 8 (as Satco proposes), or whether it also encompasses the structures shown in Figures 3, 5 and 7 and the descriptions of the “power circuitry” components throughout the specification. As with its proposed constructions for “controller,” Satco’s proposal improperly excludes disclosed structures and must be rejected. *Acromed Corp. v. Sofamor Danek Grp. Inc.*, 253 F.3d 1371, 1382-82 (Fed. Cir. 2001); *see also Kinik Co.*, 362 F.3d at 1364; *see* Ex. 9 at ¶¶ 72-73.

It is not disputed that “power circuitry” includes (i) rectifier 404, low-pass filter 408, and DC converter 402; (ii) those same components plus an adjustment circuit; and (iii) power circuitry 108. These “power circuitry” structures are illustrated in Figures 3, 5, and 7, respectively, and are therefore properly included as corresponding structure. Because the specification links these structural components to the functions recited for the power circuitry, any circuit-level embodiment of those components is encompassed within the claims. *See, e.g., UniRAM Tech., Inc. v. Monolithic Sys. Tech., Inc.*, No. C-04-1268 VRW, 2006 WL 825460, at *15 (N.D. Cal. Mar. 30, 2006) (holding that that the 112, ¶ 6 corresponding structure was a circuit’s “high-level block diagram,” which included three components); *Ampex Corp. v. Mitsubishi Elec. Corp.*, 966 F. Supp. 263, 270 (D. Del. 1997) (“[B]lock diagrams represent a number of different ways of implementing a circuit.”). To be sure, example circuit level embodiments for these structures are illustrated in Figures 4, 6, and 8, but there is no reason to limit the corresponding structure to only these specific

circuit-level embodiments of the disclosure structures. To the contrary, the specification makes clear that the disclosed power circuitry is not limited to only the specific circuits shown in Figures 4, 6, and 8. Ex. 2 at 13:56-58 (explaining that all or part of the filter components may be located ahead of rectifier 404); Ex. 2 at 19:5-12] (explaining that power circuitry may include additional adjustment circuit even though not shown in Fig. 8); Ex. 2 at 19:13-16 (explaining that power circuitry of Fig. 8 could be modified to derive a control signal from other parts of the circuit, such as at an output of the rectifier or low pass filter). Signify’s proposed structure should therefore be adopted because it properly includes all of the corresponding structures set forth in the specification. *See* Ex. 9 at ¶¶ 73-76

For the foregoing reasons, the Court should construe “power circuitry” according to its plain and ordinary meaning, or alternatively, adopt Signify’s proposed structure.

E. “adjustment circuit”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
399 Claims: 17, 19 138 Claims: 20, 22	<p>Plain and ordinary meaning</p> <p>It is Signify’s position that this is not a means-plus-function term governed by § 112, ¶ 6. To the extent that the Court finds that the term is governed by § 112, ¶ 6:</p> <p>Function: variably control the at least one parameter of light based on the varying power-related signal</p> <p>Structure: adjustment circuit 208 as illustrated in FIG. 5 and described in the specification, including the exemplary embodiment of that component as shown in FIG. 6 and described in the specification</p> <p>and/or structural equivalents thereof.</p>	<p>This is a “means-plus-function” term pursuant to § 112, ¶ 6</p> <p>Function: variably control the at least one parameter of light based on the varying power-related signal</p> <p>Structure: the components of adjustment circuit 208 that are shown in FIG. 6</p> <p>and structural equivalents thereof.</p>

“Adjustment circuit” is a structural device that forms part of the controller that should be construed according to its plain and ordinary meaning in the art. In the context of the claims, an “adjustment circuit” is a circuit that adjusts power. Ex. 9 at ¶ 77.

As with “controller” and “power circuitry,” “adjustment circuit” is not governed by § 112, ¶ 6 because it does not use the term means and it is understood as a name for structure. At least one court has confirmed as much. *Graphics Props. Holdings. v. ASUS Comp. Int’l, Inc.*, 2014 U.S. Dist. LEXIS 137776, at *57-58 (D. Del. Sept. 29, 2014) (construing “adjustment circuit” as “adjustable circuit that is operable to generate reference voltages”).

The term “adjustment circuit” finds ample support and structure in the claims and the specification of the ’399 Patent. Claim 19, for example, recites that the adjustment circuit “is coupled to the DC converter and is configured to variably control the at least one LED based on the filtered rectified power-related signal,” connoting the structure of the adjustment circuit. Ex. 2 at 26:38-67. Claim 20 explains specifically that the adjustment circuit “includes at least one processor configured to monitor at least one of the power-related signal, the rectified power-related signal, and the filtered rectified power-related signal.” Ex. 2 at 27:5-9. Because these are structural terms, the claim language confirms that a skilled artisan would understand the claimed “adjustment circuit” to recite sufficiently definite structure. *Williamson, LLC*, 792 F.3d at 1351 (Fed. Cir. 2015) (en banc); *see also Zeroclick*, 891 F.3d at 1007; *see* Ex. 9 at ¶¶ 78-79.

The specification further confirms the structural nature of the “adjustment circuit.” For example, the specification states that the “controller 204A shown in FIG. 5 includes an additional adjustment circuit 208 that further conditions a signal output from the DC converter 402.” Ex. 2 at 14:11-14. The specification goes on to explain that “[t]he adjustment circuit 208 in turn provides a variable drive signal to the LED-based light source 104, based on variations in the A.C. signal

500 (*e.g.*, variations in the average voltage of the signal) in response to user operation of the dimmer.” Ex. 2 at 14:14-18. The specification gives specific examples of the adjustment circuit, including that the adjustment circuit in FIG. 6 “is implemented . . . in part by the resistors R2 and R6 which form a voltage divider in the feedback loop of the integrated circuit U1. A control voltage 410 is derived at the junction of resistors R2 and R6, which control voltage varies in response to variations in the A.C. signal 500 due to dimmer operation.” Ex. 2 at 14:24-29. Again, these are structural descriptions that confirm a skilled artisan would understand the claimed “adjustment circuit” recites sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007. In view of the foregoing, the term “adjustment circuit” does not invoke § 112, ¶ 6. *See* Ex. 9 at ¶¶ 80-81.

If “adjustment circuit” were governed by § 112, ¶ 6, the Court should adopt Signify’s proposed structure as supported by the specification. If interpreted as means plus function term, the parties agree on the function, but again dispute whether the corresponding structure includes all disclosed structures (as Signify contends) or just one specific circuit-level embodiment of the corresponding structure (as Satco contends).

The parties agree that corresponding structure includes “adjustment circuit 208.” That component is illustrated in Figure 5, and the specification explains that the adjustment circuit “further conditions a signal output from the DC converter 402” and “provides a variable drive signal to the LED-based light source 104, based on variations in the A.C. signal 500 (*e.g.*, variations in the average voltage of the signal) in response to user operation of the dimmer.” Ex. 2 at 14:11-18. The specification further explains that Figure 8 could also include an adjustment circuit containing similar components. Ex. 2 at 19:5-9. The proper corresponding structures thus include the adjustment circuit 208 of Figure 5 as described in the specification, the modified circuit of Figure 8 as described in the specification, as well as the specific “exemplary circuit”

embodiment of adjustment circuit 208 shown in Figure 6 as described in the specification. Ex. 2 at 14:19-21 (“FIG. 6 is an exemplary circuit diagram that illustrates some of the details of the various components shown in FIG. 5, according to one embodiment of the invention.”). There is no support for Satco’s exclusion of multiple disclosed structures from its proposal. Accordingly, if the Court finds that “adjustment circuit” is governed by § 112, ¶ 6, the Court should include the corresponding structures as proposed by Signify. *See* Ex. 9 at ¶¶ 82-84.

F. “alternating current (A.C.) power source that provides signals other than a standard A.C. line voltage”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
’399 Claims: 1, 7, 17, 30, 34 ’138 Claims: 1, 33	power source that provides two or more alternating current (A.C.) signals, each being other than a sinusoidal wave at a standard frequency and amplitude	A.C. power source that provides two or more A.C. signals but does not provide standard A.C. line voltage.

The parties agree that the A.C. power source provides two or more A.C. signals, and that those signals must be different from a standard A.C. line voltage. The parties’ only disagreement is whether the A.C. power source is precluded from also providing *a standard A.C. line voltage in addition* to those signals. Signify’s construction is consistent with the claim language and the specification, both of which identify what the A.C. power source produces and are silent in relation to what the A.C. power source does not produce. While the lack of any exclusion in the claim language should end the inquiry, Signify’s proposed construction is further apparent from the nature of a A.C. dimmable circuit. A dimmer switch provides the ability to vary the average voltage anywhere from 100% of the A.C. line voltage to less than 25%. *See* Ex. 2 at 13:17-20. At 100%, the output signal would be the same as the standard A.C. line voltage. The phrase “other than a standard A.C. line voltage” would thus be understood by a POSITA to refer to the fact that the

signal where the dimmer circuit provides less than 100% of the average voltage is different from the standard A.C. line voltage.

Satco's proposal misreads the claims and contradicts the specification. The preferred embodiment of the invention is to control LED output by using a variable A.C. power source, such as a conventional dimmer. *See* Ex. 2 at 2:57-64, 9:4-16. The specification allows for (but does not require) the A.C. dimmer circuit to provide a standard A.C. line voltage (*e.g.*, when the power source is providing 100% power – i.e. no dimming), in addition to non-standard A.C. signals (*e.g.*, when the power source is providing less than 100% power – i.e. dimming). *See id.* at Fig. 1, 1:50-2:29. Satco's proposal would exclude the preferred embodiment from the claims—which the law expressly forbids. *See, e.g., Kaneka Corp. v. Xiamen Kingdomway Grp. Co.*, 790 F.3d 1298, 1304 (Fed. Cir. 2015) (“A claim construction that excludes a preferred embodiment is ‘rarely, if ever, correct.’”) (quoting *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007)); *Trading Techs. Int'l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1354 (Fed. Cir. 2010) (construction that runs contrary to the intended purpose of the invention is incorrect).

Signify's construction properly captures the plain meaning of the claim by explaining that a standard A.C. line voltage is “a sinusoidal wave at a standard frequency and amplitude.” The term “standard A.C. line voltage” is a known term of art that means “a sinusoidal wave at a standard frequency and amplitude.” The specification identifies the non-varying sine wave in Figure 1 (*i.e.*, waveform 302) as a standard A.C. line voltage. Ex. 2 at Fig. 1, 2:18-21 (“FIG. 1 shows an example of an A.C. voltage waveform 302 (*e.g.*, representing a standard line voltage) . . .”). The specification further provides two examples of a standard line voltage at a standard frequency and amplitude, *i.e.*, “120 Volts RMS at 60 Hz” (common in the United States) and “220 Volts RMS at 50 Hz” (common in other countries). Ex. 2 at 1:50-53. None of the “signals *other*

than a standard A.C. line voltage” described in the ’399 Patent—*e.g.*, varying waveforms 308 and 309—is both a sinusoidal wave and at a standard amplitude. *See id.* at 2:17-29 (describing waveform 308 as having a varying amplitude 307 and waveform 309 as having a varying duty cycle 306), Fig. 1. The Court should thus adopt Signify’s proposed construction.

G. “A.C. Dimmer Circuit” / “(A.C.) dimmer circuit” / “alternating current (A.C.) dimmer circuit”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
’399 Claims: 1, 4, 7, 14, 17, 30, 34, 47, 48, 57, 58, 59 ’138 Claims: 2, 3, 6, 9, 17, 34	a circuit that provides an alternating current (A.C.) dimming signal	Plain meaning

“A.C. [alternating current (A.C.)] dimmer circuit,” should be construed to mean “a circuit that provides an alternating current (A.C.) dimming signal.” The PTAB agreed with this interpretation. *See Wangs Alliance Corp. v. Philips Lighting N. Am. Co.*, Case IPR2015-01294 (P.T.A.B. Nov. 23, 2016) (Paper 48) at 13-14. Signify’s proposal is helpful to clarify that the A.C. dimmer circuit provides an A.C. output signal used for dimming the light source. While here Satco argues for “plain and ordinary meaning,” during the PTAB proceedings, Satco argued that an A.C. dimmer circuit need only *receive* an A.C. signal, rather than *provide* an A.C. output signal. A dimmer circuit that merely “receives,” but does not “*provide*,” an A.C. signal would improperly include circuits that receive an A.C. signal but provide a D.C. signal to the claimed apparatus. The PTAB rejected such a broad reading of the claims as inconsistent with the plain meaning of the term and with the specification and any attempt to capture such a broad reading here should be rejected. *See id.*

The claims recite a *controller* in the *illumination apparatus* that is *configured to receive* and *provide power based on* signals from the A.C. dimmer circuit. Ex. 1 at cls. 1, 7, 17, 47, 57,

58, 59; *see also id.* at cls. 30, 34, 42, 44. The claimed apparatus does not itself include the A.C. dimmer circuit. *See* Ex. 1 at 25:41-61, 26:38-59, 28:30-51. Thus, the claimed apparatus does not know or care what signals the A.C. dimmer circuit *receives*; rather, what matters is what signals the A.C. dimmer circuit *provides to* the claimed apparatus. *See id.*

The '399 Patent repeatedly and exclusively uses "A.C. dimmer circuit" to refer to a circuit that provides only A.C. dimming signals, *not* D.C. dimming signals. Ex. 2 at 1:53-59 ("A conventional A.C. dimmer typically receives the A.C. line voltage as an input, and provides an *A.C. signal output* having one or more variable parameters that have the effect of adjusting the average voltage of the output signal (and hence the capability of the A.C. output signal to deliver power)"), 9:10-13 ("dimmer circuits that *provide A.C. output signals*"), 10:43-47, 11:30-40, 12:26-30, 12:54-60, 12:63-67, 13:9-13, 14:1-6, 16:67-17:6; *see In re Abbott Diabetes Care, Inc.*, 696 F.3d 1142, 1150 (Fed. Cir. 2012) ("[E]ven when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.").

Nowhere in the written description is there an example of the claimed invention being configured to be compatible with a D.C. dimming signal, and none of the disclosed embodiments of the invention relate to D.C. dimming signals. *See In re Baker Hughes Inc.*, 215 F.3d 1297, 1302-03 (Fed. Cir. 2000) (finding error in construing "hydrocarbon" to include gases because the written description only disclosed liquid hydrocarbon, and no embodiment used or related to gaseous hydrocarbon).

Indeed, the primary purpose of the '399 Patent is to make LED lighting devices compatible with the A.C. dimming signals provided by A.C. dimmer circuits. *See* Ex. 2 at 1:25-27 ("The present invention is directed generally to . . . provid[e] power to devices on A.C. power circuits."),

9:10-16 (“Applicants have identified that LED-based light sources, which operate based on substantially D.C. power sources, generally are incompatible with *dimmer circuits that provide A.C. output signals*. This situation impedes convenient substitution of LED-based light sources into pre-existing lighting systems in which conventional light sources are operated via A.C. dimmer circuits.” (emphasis added)); see *In re Abbott*, 696 F.3d at 1149-50 (finding error in construction that was inconsistent with the “primary purpose of the invention”).

Further, to avoid redundancy, “A.C. dimmer circuit” must be construed more narrowly than “A.C. power source,” such that an A.C. dimmer circuit should be construed to mean “a circuit that provides an alternating current (A.C.) dimming signal.” See *TMI Prods., Inc. v. Rosen Entm’t Sys., L.P.*, 610 F. App’x 968, 972 (Fed. Cir. 2015) (rejecting “proposed construction [that] creates redundancies in the claim language”). The Court should adopt Signify’s proposal.

VI. TERMS AND PROPOSED CONSTRUCTIONS OF THE ’554 PATENT

A. Overview of the ’554 Patent

The ’554 Patent relates to dimmable, “feed-forward” drivers designed for LED devices—*i.e.*, power control apparatuses that “combine[] the functionality of a DC-DC converter and a light source controller, and [are] configured to control the intensity of light . . . without monitoring or regulating the voltage or current provided to the [LED] light source.” Ex. 3 at 25:50-58; Ex. 9 at ¶ 32.

“Feed-forward” drivers are circuit configurations in which information associated with a load (*e.g.*, a desired power to be drawn by the load, a desired voltage to be applied across the load, etc.) is known in advance and used to facilitate circuit operations. *Id.* at 26:11-17. For example, in such configurations, a controlled, predetermined power is provided to a load via a switched energy transfer method without requiring any feedback information from the load. *Id.* at 26:17-22. That is, there is no requirement to monitor load voltage and/or load current. *Id.* at 26:22-23. Instead, the

predetermined power is provided to the load based on monitoring one or more parameters relating to the source of power, like, for example, voltage input or current drawn from the power source.

Id. at 26:23-29; *see also* Ex. 9 at ¶ 32.

This new feed-forward topology simplified circuit designs used to dim LEDs by recognizing and removing redundancies present in the feedback loops of conventional circuit designs. By removing those redundancies, the invention eliminates costs for unnecessary components and allows for smaller circuits and improves the power efficiency. *See id.* at 12:10-36, 21:28-34; *see also* Ex. 9 at ¶ 33.

B. “without monitoring or regulating a first voltage or a first current”

Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claims 1, 6, 46, 51	Plain and ordinary meaning	without: <ul style="list-style-type: none"> • directly or indirectly monitoring a first voltage • directly or indirectly monitoring a first current • directly or indirectly regulating a first voltage • directly or indirectly regulating a first current

The claim term “without monitoring or regulating a first voltage or a first current” is plain on its face and easily understood by one of skill in the art. Satco seeks to interject “directly or indirectly” as a qualifier for monitoring or regulating. But the terms “directly” and “indirectly” are not used in the specification at all when describing monitoring or regulating.⁵ Rather than clarify, Satco’s construction will confuse. Satco’s construction is also unclear on its face where it does not

⁵ Ex. 3 at 6:51-54 (describing a direct power supply), 18:5-10 (describing radiation viewed directly and indirectly by an observer), 32:20-26 (describing direct modulation of switching frequency *f*), 36:5-9 (describing applying an offset directly to a register).

specify whether all four of the qualifiers or, rather, any one of the qualifiers may be met to satisfy the claim. The '554 Patent already provides ample description of what this phrase means and no construction is necessary. *See, e.g.*, 12:39-48 (explaining that the feed-forward driver uses “information known in advance . . . to control the intensity of radiation . . . without monitoring or regulating the voltage or current provided to the light source.”).

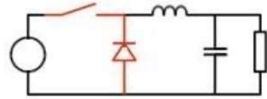
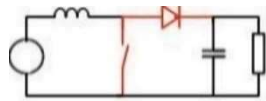
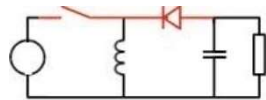
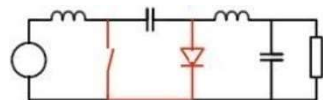
C. “without using any feedback information relating to the at least one first LED”

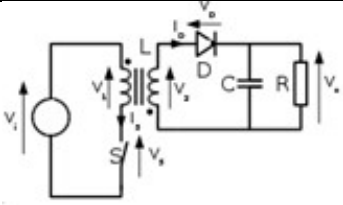
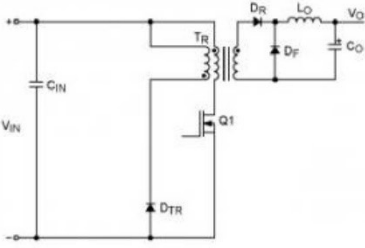
Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
Claims 7, 52	Plain and ordinary meaning	without directly or indirectly using any feedback information relating to the at least one first LED

Satco’s proposed construction for this term suffers from the same lack of support and ambiguity as the previous term. Satco again inserts “directly or indirectly” into the term. This new limitation is unsupported and unnecessary; a POSITA would have understood the meaning of “without using any feedback information relating to the at least one first LED” as explained in the context of the '554 Patent. For example, the '554 Patent explains that “[i]n some embodiments, a controlled predetermined power is provided to a load without requiring any feedback information from the load (*i.e.*, without monitoring load voltage and/or current”). Ex. 3 at 12:21-24. The '554 Patent goes on to provide a specific description of the circuit for such embodiments, stating that “isolation components typically employed between a DC output voltage of a DC-DC converter (*e.g.*, the load supply voltage) and a source of power derived from an AC line voltage (*e.g.*, a high DC voltage input to the DC-DC converter) in some cases may be eliminated, thereby reducing the number of required circuit components” and that “[i]n yet another aspect, eliminating the need for a feedback loop generally increases circuit speed and avoids potentially challenging issues relating

to feedback circuit stability.” Ex. 3 at 12:27-36. This term should be given its plain and ordinary meaning.

D. “converter” terms

Term and Asserted Claims	Plaintiffs’ Construction	Defendant’s Construction
“buck converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, i.e. a conventional DC-DC converter typically having the following topology: 
“boost converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, i.e. a conventional DC-DC converter, typically having the following topology: 
“buck-boost converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, i.e. a conventional DC-DC converter typically having the following topology: 
“CUK converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, i.e. a conventional DC-DC converter typically having the following topology: 
“flyback converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, a conventional DC-DC converter, typically having the following topology:

		
“forward converter” Claims 2, 6, 47, 51	Plain and ordinary meaning	Plain meaning, a conventional DC-DC converter, typically having the following topology: 

The parties agree that the above well-known converter terms should be accorded their plain meaning. Yet Satco insists on adding unnecessary limitations to that “plain meaning,” stating that such converters comprise “conventional” DC-DC converters that “*typically*” have a particular topology. Inserting such examples into the terms is contrary to the “heavy presumption” that claim terms be given their ordinary and customary meaning and improperly re-writes the claims. *Mass. Institute of Tech.* 839 F.3d at 1118; *see Taurus IP, LLC*, 726 F.3d at 1321 (“Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee.”). Satco’s attempt to somehow limit these terms to the “typical[]” topologies that Satco proposes is especially inappropriate where the specification explains that the converter terms were well-known to POSITAs at the time of the invention. *See, e.g.,* Ex. 3 at 2:50-58, 4:15-27 (describing “conventional” converters); *see also* Ex. 9 at ¶¶ 85-86. Thus, a POSITA would have well understood the meaning of the converter terms absent any limiting examples in the construction.

Satco's proposed constructions are also unsupported by the specification. Satco's "typical[]" topologies are plucked from extrinsic evidence,⁶ completely divorced from the context of the '554 Patent. *See Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1320 (Fed. Cir. 2016) ("A party is, therefore, 'not entitled to a claim construction divorced from the context of the written description and prosecution history.'" (quoting *Nystrom v. TREX Co., Inc.*, 424 F.3d 1136, 1144-45 (Fed. Cir. 2005))).

Furthermore, Satco's "typical[]" topologies are neither helpful nor technically accurate. A person of ordinary skill in the art would not have considered any of the proposed topologies "typical[]" of the listed converters or "conventional" DC-DC converters. Rather, Satco's proposed examples provide nothing over the terms' plain and ordinary meaning and may indicate an unnecessary and unclear limitation on what is typical. Satco's proposed topologies should be rejected. *See* Ex. 9 at ¶¶ 87-89.

To the extent that the jury would benefit from explanation as to example topologies of the claimed converters, the parties should provide that explanation through expert testimony. The well-understood converter terms should be accorded their plain meaning.

VII. TERMS AND PROPOSED CONSTRUCTIONS OF THE '604 PATENT

A. Overview of the '604 Patent

Prior to the '604 Patent, light emitting modules lacked mechanisms for dissipating heat (Ex. 6 at 1:38-51), lacked mechanisms for protecting LEDs from the environment (*id.* at 1:52-63), required complicated housings (*id.* at 2:20-16), lacked optical elements (*id.* at 2:41-42), and were difficult to manufacture or failed to provide ease of maintenance (*id.* at 2:51-54). The inventor of

⁶ Satco's "typical[]" topologies" correspond to the images provided by Wikipedia for each of these terms. *See* Exs. 26, 27.

the '604 Patent realized that there was “a need for a new lighting module that provides optical, mechanical, electrical, and thermal functionality and electromechanical connectivity in a modular form.” *Id.* at 2:51-54.

To satisfy this need, the '604 Patent describes an improved light emitting module that enables heat dissipation from the light-emitting elements, while also protecting those light-emitting elements from environmental conditions. *Id.* at 4:7-11. Annotated Figure 3 shown below shows light emitting module 300. *Id.* at Fig. 3; Ex. 8 at ¶72.

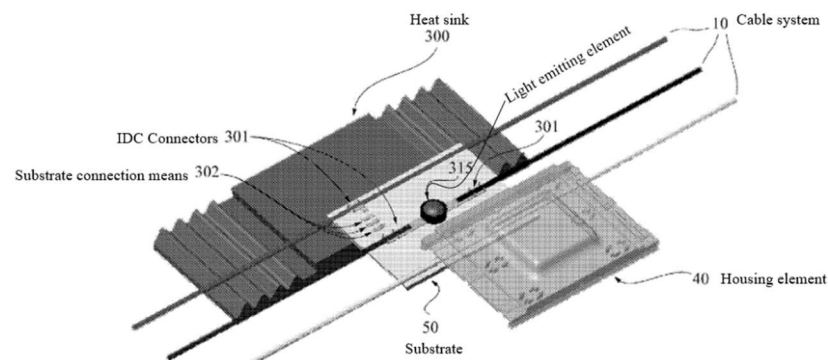


FIGURE 3

Annotated Figure 4 shows the back view of the housing element 40 is shown below:

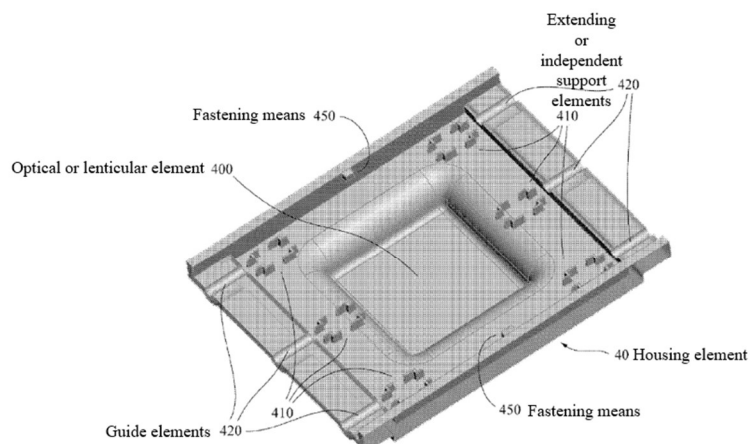


FIGURE 4

Ex. 6 at Fig. 4 (annotated); Ex. 8 at ¶ 73.

B. “fastening means”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“fastening means for detachably coupling the housing element to the heat dissipation element” (proposed by Satco) (claim 1)	<p><u>Function</u>: detachably coupling the housing element to the heat dissipation element.</p> <p><u>Structures</u>: (i) fastening means 450 as described in Figure 4 and at, and 7:42-51; (ii) mechanical fasteners for example, screws, bolts, rivets or the like; magnetic mounting systems; adhesives for example, pressure sensitive tape, glue or epoxy or the like as described at 5:18-24, 6:43-45, 7:25-26, 7:55-67; and (iii) equivalents thereof</p>	<p><u>Function</u>: detachably coupling the housing element to the heat dissipation element.</p> <p><u>Structure</u>: The tabs 450 shown in Fig. 4 and described in col. 7:42-51, and their structural equivalents.</p>

The parties agree that this term qualifies a means-plus-function limitation. In this case, the parties also agree as to what the function of the “fastening means” is. Namely, to detachably couple the housing element to the heat dissipation element. The parties, however, disagree as to what structures in the specification corresponds with this function.

1. Corresponding Structure

The parties agree that the fastening means 450 described in Figure 4 and at 7:42-51, and equivalents thereof is one structure disclosed in the ’604 Patent. Satco’s proposed structure, however, ignores other explicitly disclosed and identified structures. Ex. 8 at ¶¶74-85.

For example, the 604 Patent states:

The *fastening means can be* mechanical fasteners for example, screws, bolts rivets or the like, magnetic mounting systems, adhesives for example, pressure sensitive tape, glue or epoxy or the like, or other forms of fastening means as would be readily understood by a worker skilled in the art.

Ex. 6 at 5:18-24 (emphasis added); Ex. 8 at ¶¶77.

The Federal Circuit has “held many times that a patentee can act as his own lexicographer to specifically define terms of a claim contrary to their ordinary meaning,” but the written

description must clearly redefine a claim term “so as to put a reasonable competitor or one reasonably skilled in the art on notice that the patentee intended to so redefine that claim term.” *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357 (Fed. Cir. 1999); *MTD Prods., Inc. v. Iancu*, 933 F.3d 1336, 1342 (Fed. Cir. 2019) (noting that regardless of whether a “means” clause is involved, claims are still interpreted in light of the written description, and a patentee still acts as its own lexicographer to define a disputed claim term).

This is one such instance where the patentee has unambiguously defined a claim term. Here, the ’604 Patent defines “fastening means” as including structures beyond fastening means 450. Moreover, from this disclosure, a POSITA would understand that all of these structures could be used to detachably couple the housing element to the heat dissipation element. Ex. 8 at ¶¶ 77-81. A POSITA would understand that mechanical fasteners for example, screws, bolts, rivets or the like; magnetic mounting systems; adhesives for example, pressure sensitive tape, glue or epoxy or the like could be used to detachably couple the housing element to the heat dissipation element. *Id.*

Further, the specification reconfirms that the “connection between the housing element and the heat dissipation element,” *i.e.*, the “fastening means,” can include a sealant such as glue or epoxy. Ex. 6 at 7:55-67. The ’604 Patent states:

In one embodiment, *this connection between the housing element and the heat dissipation element can additionally apply pressure to the substrate Furthermore, this kind of attachment mechanism can be employed, for example, to press a sealing means such as glue or epoxy, for example, between the housing element and heat dissipation element*, such that when assembled the cavity between the housing element and the heat dissipation element is sealed from environmental conditions.

Id. A plain reading of this portion of the specification confirms that the ’604 Patent discloses an attachment between the housing element and the heat dissipation element that includes glue or

epoxy. Since glue and epoxy were disclosed as fastening means (5:19-24), it follows that such fastening means can be used to attach the housing and the heat dissipation element. *See* Ex. 8 at ¶ 85.

Dependent claim 12 compels the same conclusion. Dependent claim 12 recites: The light-emitting module according to claim 1, wherein a sealant substance is positioned between the housing element and the heat dissipation element for environmental sealing between the housing element and the heat dissipation element.” Ex. 6 at 12:1-5. Thus, claim 12 envisions glue or epoxy between the housing element and the heat dissipation element for attachment and environmental sealing. Ex. 8 at ¶¶ 85.

Even more problematic, Satco’s proposal renders dependent claim 11 superfluous. Dependent claim 11 states “[t]he light-emitting module according to claim 1, wherein the housing element is formed from flexible material for releasably connecting to the heat dissipation element.” *Id.* at 11:17-19. The agreed structure, fastening means 450, in Fig. 4 and described in col. 7:42-51, which states:

In one embodiment, the housing may be made of a material which has a degree of flexibility such that under a controlled applied mechanical force, the housing assumes a strained shape and its fastening means **450** can assume a position which enables the housing to be slid over the heat dissipation element **300**.

Ex. 6 at 7:42-47.

If the Court accepts Satco’s proposed structure, then claim 11 is meaningless as independent claim 1 would already require a fastening means 450 formed of a flexible material for releasably connecting to the heat dissipation element. *Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (“[I]nterpretations that render some portion of the claim language superfluous are disfavored.”); *Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328,

1335 (Fed. Cir. 2007) (“an independent claim impliedly embraces more subject matter than its narrower dependent claim.”).

C. “integrally formed”

The parties agree that the term “integrally formed” (claim 3) should be construed as “formed as a single unit from the same material.”

VIII. TERMS AND PROPOSED CONSTRUCTIONS OF THE ’525 PATENT

A. Overview of the ’525 Patent

The ’525 Patent describes a novel switching arrangement for LEDs that reduces high radio interference (EMI). Ex. 4 at 1:36-38. EMI is a problem for LEDs because power conversion is typically required to control current to the LEDs, *e.g.*, AC to DC power conversion is required when connected to public mains as the power supply source. Power conversion realized using a high frequency switching arrangement may inject high frequency currents into the input power source and create EMI that can interfere with other elements supplied by the power source. Ex. 9 at ¶¶ 92-93.

The invention of the ’525 Patent solves this problem by using a new switching arrangement comprised of three series circuits each with specific components. Ex. 4 at 1:1-16, 1:34-36; Ex. 9 at ¶¶ 93-97. An example of the “first series circuit” I is shown below in pink and it comprises a self-inductance L, a capacitor C, a diode D, and a primary winding PW of a transformer T. Ex. 4 at 2:37-39, 2:48-50; Ex. 9 at ¶¶ 94, 97. The “first series circuit” I is between input terminal 1 and output terminal 3. Ex. 4 at 2:37-38; Ex. 9 at ¶¶ 94, 97. Here the self-inductance L is an inductor. Ex. 9 at ¶ 94

The “second series circuit” II is shown below in yellow and it comprises the self-inductance L, a switching element S, and the primary winding PW of a transformer T. Ex. 4 at 2:40-43; 2:48-

50; Ex. 9 at ¶¶ 95, 97. The “second series circuit” II is between the input terminal 1 and input terminal 2. Ex. 4 at 2:40; Ex. 9 at ¶¶ 95, 97.

The “third series circuit” III is shown below in blue and it comprises the diode D and an inductive winding that forms a secondary winding SW of a transformer T. Ex. 4 at 2:44-25; Ex. 9 at ¶¶ 96, 97. The “third series circuit” III is between output terminal 3 and output terminal 4. Ex. 4 at 2:45-46; Ex. 9 at ¶¶ 96, 97.

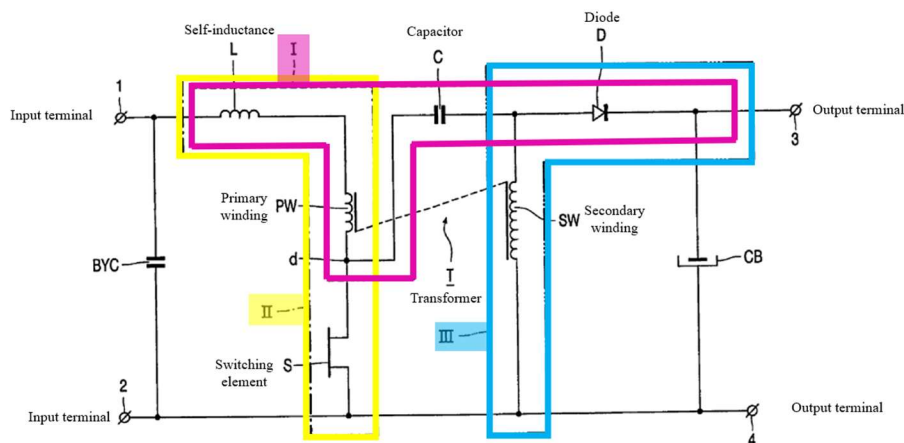


FIG. 1

B. “self-inductance”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“self-inductance” (claim 1)	An inductive circuit component distinct from the claimed transformer	plain meaning, i.e., the property of an electric circuit whereby an electromotive force is induced in that circuit by a change of current in the circuit

The parties dispute whether the claimed “self-inductance” requires “an inductive circuit component distinct from the claimed transformer,” *e.g.*, “self-inductance” L, or whether, under Satco’s proposal, “self-inductance” is rendered superfluous and may be satisfied by other components in the claim such as the “diode” D or “primary winding” PW of the transformer T.

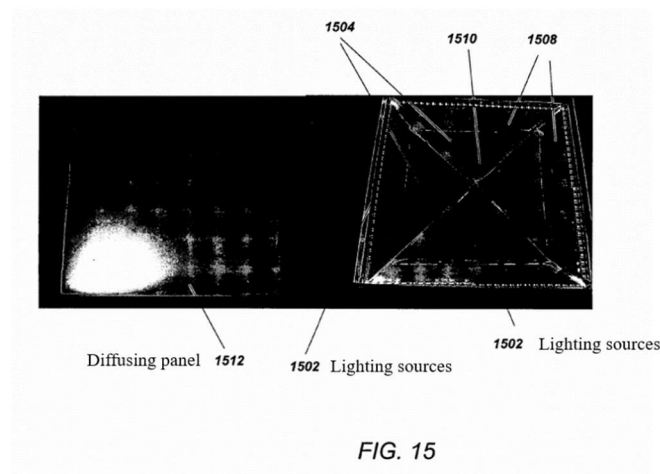
Signify's proposed construction is consistent with the intrinsic evidence. Ex. 9 at ¶¶ 91-102. Both Figures 1 and 2 of the '525 Patent and their accompanying discussion in the specification show that "self-inductance" L is a component that is distinct from other components of the first and second series circuit. Ex. 4 at Fig. 1, Fig. 2; Ex. 9 at ¶ 99. As discussed by Dr. Zane, all practical components have a non-zero self-inductance through either parasitic (*i.e.* unintentional through component construction or wiring) or designed (*i.e.* intentional through component construction or wiring) inductance. Ex. 9 at ¶ 102. Thus, under Satco's proposed construction, any circuit component would be a "self-inductance." *See id.* at ¶¶ 101-102. Accordingly, Satco's proposed construction of "self-inductance" renders the term superfluous because it would be satisfied by diode D or primary winding PW. *Id.* A construction that renders terms superfluous should be rejected. *Bedgear, LLC v. Fredman Bros. Furniture Co.*, 2019 U.S. Dist. LEXIS 29313, *31 (E.D.N.Y. Feb. 25, 2019) (quoting *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.")).

Further, the self-inductance L described in the '525 Patent has a specific purpose, which is to provide an inductance connected to the input terminal that draws a nearly constant current from the input terminal during a switching period. Ex. 9 at ¶ 100. This is achieved using a relatively large self-inductance L (*e.g.*, with an inductance value L1 in the order of 3900 μ H) and the modified switching arrangement that includes the claimed transformer T to reduce the current ripple in self-inductance L. Ex. 9 at ¶¶ 101; Ex. 4 at 3:15-18. By comparison, the transformer T has an inductance, often termed the magnetizing inductance of the transformer, that is significantly smaller than that of self-inductance L (*e.g.*, with an inductance value Ls of the transformer magnetizing inductance of 120 μ H that is 30 times smaller than the inductance value L1). *Id.*

IX. DISPUTED TERMS AND PROPOSED CONSTRUCTIONS OF THE '929 PATENT

A. Overview of the '929 Patent

The '929 Patent (Ex. 7) improved upon known LED-based lighting methods and systems by using innovative LED illumination within tile lighting fixtures. For example, Figure 15 depicts a tile and diffusing panel, wherein the diffusing panel 1512 covers the housing unit, within which the lighting sources 1502 are disposed at the edges.



Ex. 7 at Fig. 15.

B. “diffuser disposed over the housing”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“diffuser disposed <u>over the housing</u> ” (claim 17)	Plain and ordinary meaning	diffuser is placed on top of the housing/enclosure

The commonly used and understood words “diffuser disposed over the housing” do not need construction because their plain and ordinary meaning is readily apparent. Satco errs by proposing that this term be limited to a diffuser placed on *top* of a housing. The housing disclosed in the '929 Patent is a three dimensional object that does not have a defined “top.” For example, Figure 15 illustrates an edge-lit embodiment of a tile light and Figure 18A illustrates a tile lighting unit designed to be placed flush to a flat surface. The “top” of these tile lights’ housings under

Satco’s construction is anyone’s guess. The plain language of this term merely requires the diffuser be over the housing. The term is silent as to what portion(s) of the housing the diffuser is disposed over. Satco’s attempt to require the diffuser be over a specific and poorly defined portion of the housing, *i.e.*, “top”, should be rejected as it introduces ambiguity into a term that is already readily understandable.

C. “a reflector interior to the housing for providing a consistent level of light output to the different portions of the diffuser”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“a reflector interior to the housing <u>for providing a consistent level of light output to different portions of the diffuser</u> ” (claims 19, 63)	Plain and ordinary meaning, or in the alternative a reflector interior to the housing for providing a homogenized light output to different portions of the diffuser	Indefinite

The parties dispute whether “a reflector interior to the housing for providing a consistent level of light output to different portions of the diffuser” has a definite meaning. Because a person of ordinary skill would understand the scope of the invention with reasonable certainty, the term is not indefinite. Ex. 8 at ¶¶ 86-92; *see also Nautilus*, 134 S. Ct. at 2124.

The ’929 Patent describes methods and apparatuses to improve tile lights to ensure they provide “a consistent level of light output to different portions of the diffuser.” Ex. 2 at 1:40-48. The tile lights include linear LED lighting units placed around the perimeter of the housing unit. *Id.* at 3:33-37. The specification describes several types of diffusers that would achieve the ’929 Patent’s claimed invention—a consistent level of output to different portions of the diffuser. *Id.* at 35:26-36:3; *see also* Ex. 8 at ¶89.

Based upon these disclosures a POSITA would understand that “providing a consistent level of light output to different portions of the diffuser” has a definite meaning. Ex. 8 at ¶¶ 86-92. For example, the specification discloses providing a consistent level of light output to different

portions of the diffuser via (i) a pyramidal element 1510, (ii) curved shapes described by a 2nd order equation, such as a parabola, or (iii) a Lambertian surface. The specification therefore demonstrates that “a reflector interior to the housing for providing a consistent level of light output to different portions of the diffuser” has definite meaning so that a person of ordinary skill would understand. *See* Ex. 7 at 3:41-43, 35:50-36:3; Ex. 8 at ¶¶ 90.

To the extent this term requires construction it should be construed as “a reflector interior to the housing for providing a homogenized light output to different portions of the diffuser.” As discussed above, the ’929 Patent discloses multiple embodiments to “homogenize and diffuse light output.” Ex. 7 at 4:49, 32:7, 35:46-47. A POSITA would therefore understand that the term “a reflector interior to the housing for providing a consistent level of light output to different portions of the diffuser” has a definite meaning. That is either plain and ordinary meaning, or a reflector interior to the housing for providing a homogenized light output to different portions of the diffuser. Ex. 8 at ¶¶ 86-92.

D. “disposed in an architectural environment”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“disposed in an architectural environment” (proposed by Signify) (claim 23) “an architectural environment” (proposed by Satco) (claim 23)	mounted or integrated into walls, ceilings, doors, windows or floors	Indefinite

A POSITA would understand “disposed in an architectural environment” to mean “mounted or integrated into walls, ceilings, doors, windows or floors.” Ex. 8 at ¶¶ 93-99. The ’929 specification discusses multiple embodiments that describe an “architectural environment.” Ex. 7

at 3:10-11, 3:30-32, 3:50-52, 4:2-5. For example, “architectural environment includes a building exterior, including the walls, doors, and windows that might make up a building’s exterior.” *Id.* at Abstract. Therefore, a POSITA would understand the scope of “architectural environment” with reasonable certainty. *See Nautilus*, 134 S. Ct. at 2124; *see also* Ex. 8 at ¶¶ 93-99.

E. “a geometric shape”

Claim Term	Plaintiffs’ Construction	Defendant’s Construction
“a geometric shape” (claim 61)	Plain and ordinary meaning	a polygon (rectangle, triangle, etc.), not an irregular shape

The commonly used and understood words “a geometric shape” do not need Court construction because their plain and ordinary meaning is readily apparent. *See Hill-Rom*, 755 F.3d at 1371 (“While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.”). Further, Satco’s proposed construction should be rejected because it excludes diffusers that have a geometric shapes, but are not polygons such as circular diffusers. The ’929 Patent describes “a lighting system configured in a two-dimensional shape, such as a square, rectangle, *circle*, polygon, or *other shape*.” Ex. 7 at 31:34-35, 36:19-24, 58:28-33; *see also* Fig. 4 at 402. Further, the ’929 Patent is explicit that “diffusing panels can be shaped and sculpted into a variety of pleasing forms for aesthetic and decorative purposes....in combinations of colors and shapes, each installation can be unique.” *Id.* at 36:30-37. For example, “FIGS. 44A-44D shows embodiments of different shapes and types of materials that can be used as diffusers.” Ex. 7. Figure 44B shows a diffuser that has the geometric shape of plano convex lens. *Id.* at Fig. 44B. As an additional example, “FIGS. 48A and 48B shows a hemispherical diffuser with a graphical element included on it.” *Id.* The Court should reject Satco’s construction as it excludes diffusers having geometric shapes, such as circles, plano convex lenses, and hemispheres, that are explicitly contemplated by the ’929 Patent. *GE*

Lighting Sols. LLC v. Agilight Inc., 750 F.3d 1304, 1311 (Fed. Cir. 2014) (quoting *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008) (“where claims can reasonably [be] interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary”).

CONCLUSION

For the foregoing reasons, Signify respectfully requests that the Court adopt its proposed constructions for each of the claim terms in dispute and hold that none of the claim terms are indefinite.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

On November 20, 2020, I electronically submitted the foregoing document with the clerk of court for the U.S. District Court, Eastern District of New York, using the electronic case filing system of the court. I hereby certify that I have served all counsel of record electronically or by another manner authorized by Federal Rule of Civil Procedure 5(b)(2).

/s/ Thomas W. Davison
Thomas W. Davison